IBM System x3250 M3

IBM Redbooks Product Guide

The IBM® System x3250 M3 is a single-socket server that offers new levels of performance and flexibility to help you respond quickly to changing business demands. Cost-effective and compact, it is well suited to small to mid-sized businesses, as well as large enterprises, whether for general-purpose workloads or specialized applications. The x3250 M3 is designed for infrastructure applications such as firewall, security, disaster recovery, name server, authentication, credit card processing, email, domain controller, and more. It leverages the latest dual-core and quad-core processor technology.

Suggested uses: Application Solution Providers and medium/large enterprises with space constrained data centers, SMBs, custom apps, e-mail/collaboration, file/name/print, security, web serving, or branch office solution.

Figure 1. IBM System x3250 M3

Did you know?

The IBM System x3250 M3 is a single-socket rack-mounted server that offers new levels of performance and flexibility to help you respond quickly to changing business demands. Cost-effective and compact, it is well-suited for small to mid-sized businesses, as well as large enterprises, whether for general-purpose workloads or specialized applications.

The x3250 M3 helps you save on energy costs with features that support IBM Systems Director Active Energy Manager™ to let you monitor and control power consumption in your IT environment. An option to upgrade to a high-efficiency power supply is also available.

Key features

The single-socket IBM System x3250 M3, incorporating IBM X-Architecture features, is an affordable, single-socket rack-mount server that offers more performance, configuration flexibility and availability features than many other servers in its class. From network infrastructure to distributed applications to front-end workloads, the x3250 M3 is designed to meet a wide range of business needs and help you adapt to changing business requirements.

Performance

The x3200 M3 offers numerous features to boost performance and reduce costs:

- Supports a single processor, including the quad-core Intel® Xeon® 3400 Series processor, designed with fast 1333 MHz memory access and 8 MB of L3 cache, to help provide the computing power you need to match your business needs and growth.
- Six DIMMs of registered 1333 MHz DDR3 ECC memory provide speed, high availability. Supports up to 32 GB of memory with four 8GB DIMMs.
- High-performance 6 Gbps SAS RAID controllers and 15K RPM 6 Gbps SAS disk drives in a variety of capacities to suit your local storage requirements.
- The use of solid-state drives (SSDs) instead of or along with traditional spinning drives (HDDs) can significantly improve I/O performance. An SSD can support 20,000 I/O operations per second (IOPS) whereas a typical HDD handles fewer than 500 IOPS.

Flexibility and scalability

The x3250 M3 has the ability to grow with your application requirements with these features:

- Space-saving 1U rack design.
- A choice of 2-core or 4-core processors with clock rates up to 3.06 GHz.
- Six DIMM sockets allowing memory expansion of up to 48 GB.
- Seven USB 2.0 ports available - two front, four rear, and one internal for an embedded hypervisor.
- Storage bay flexibility: Up to two 3.5" simple-swap SATA or hot-swap SAS/SATA HDDs, or up to four 2.5" hot-swap SAS/SATA HDDs or SSDs. Additional internal optical drive bay.
- Direct-attach SAS storage with the EXP2512 and EXP2524 storage enclosures is supported. IBM System Storage servers, including network-attached storage (NAS), and iSCSI or Fibre Channel-attached storage, can also be attached.
- Two PCI Express 2.0 (PCIe 2.0) or PCI-X I/O slots for increased network or storage connectivity. One slot dedicated to the optional RAID controller.

Manageability and security

Powerful systems management features simplify local and remote management of the x3250 M3:

- The x3250 M3 includes an Integrated Management Module (IMM) to monitor server availability, perform Predictive Failure Analysis, and trigger IBM Systems Director alerts.
- An optional Virtual Media Key enables additional systems management capabilities, including web-based out-of-band remote control (keyboard video and mouse), remote optical drive support, Windows “blue screen” error capture, and support for LDAP and SSL protocols.
- Text Console Redirection support allows the administrator to remotely view server text messages over Serial or LAN connections.

- Integrated industry-standard Unified Extensible Firmware Interface (UEFI) next-generation BIOS. New capabilities include:
  - Human readable event logs — no more beep codes.
  - Complete out-of-band coverage by the Advance Settings Utility to simplify remote setup.
  - A complete setup solution, allowing adapter configuration functions to be moved into UEFI.
- Integrated IPMI 2.0 support alerts IBM Systems Director to anomalous environmental factors, such as voltage and thermal conditions. It also supports highly secure remote power control using data encryption.
- IBM Systems Director is included for proactive systems management. IBM Systems Director comes with a portfolio of tools, including IBM Systems Director Active Energy Manager, IBM Service and Support Manager, and others. IBM Systems Director also offers extended systems management tools for additional server management and increased availability. When a problem is encountered, IBM Systems Director can issue administrator alerts via email, pager, and other methods.
- IBM Systems Director Active Energy Manager provides advanced power management features with actual real-time energy monitoring, reporting, and capping features.

Availability and serviceability

The System x3250 M3 provides many features to simplify serviceability and increase system uptime:

- The server offers ECC memory protection. This can help reduce downtime caused by memory errors.
- Toolless cover removal provides easy access to upgrades and serviceable parts, such as HDDs and memory. Similarly, the Virtual Media Key and the ServeRAID controller can be installed and replaced without tools. This means less time (and therefore less money) spent servicing the x3200 M3.
- Toolless slides ship with the server, together with a cable management arm (CMA), that allows the rack server to easily slide into place.
- Solid-state drives (SSDs) offer significantly better reliability than traditional mechanical HDDs for greater uptime.
- The three-year (parts and labor) limited onsite warranty provides peace of mind and greater investment protection than a one-year warranty does.

Energy efficiency

The System x3250 M3 has an energy-efficient design with features including the following:

- Low-voltage processors draw less energy and produce less waste heat than high-voltage processors, thus helping to reduce data center energy costs. The available dual-core Xeon L3406 processor use only 30 W.
- Optional solid-state drives (SSDs) use only 2 W of power per drive, compared to 9 - 10 W for 2.5-inch HDDs. This is as much as 80% less power than a 2.5-inch HDD would use, with a corresponding reduction in heat output that further improves the overall bottom line.
- Energy-efficient components, including low-voltage transistors and voltage regulator devices, and power supplies.
- The server uses hexagonal ventilation holes in the chassis. Hexagonal holes can be grouped more densely than round holes, providing more efficient airflow through the system chassis. This ultimately results in reduced operational costs.

Locations of key components

Figure 2 shows the front of the server.

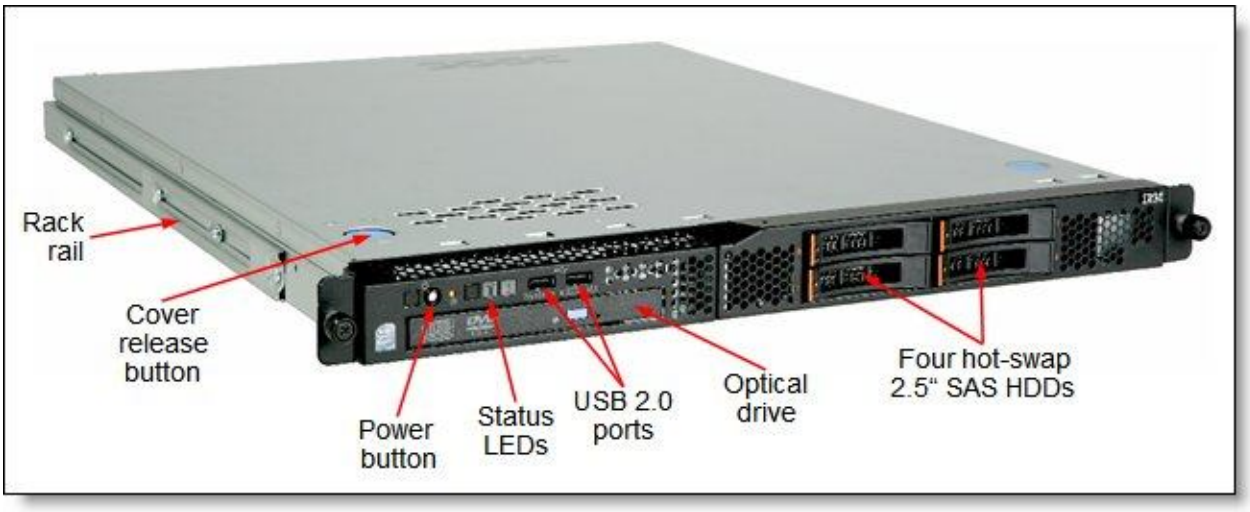

Figure 2. IBM System x3250 M3 rack server (front view)

Figure 3 shows the rear of the server.

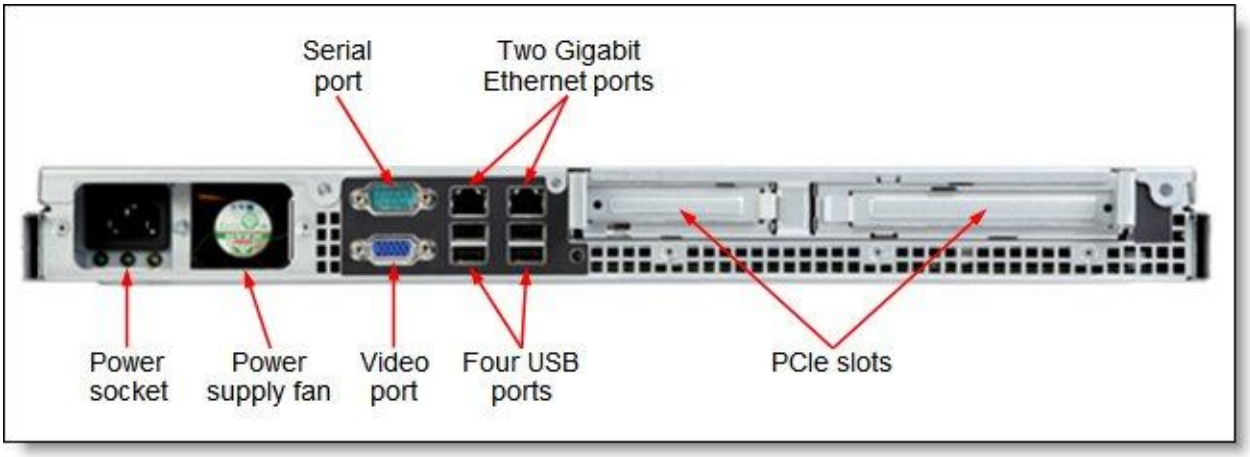

Figure 3. IBM System x3250 M3 rack server (rear view)

Figure 4 shows the locations of key components inside the server.

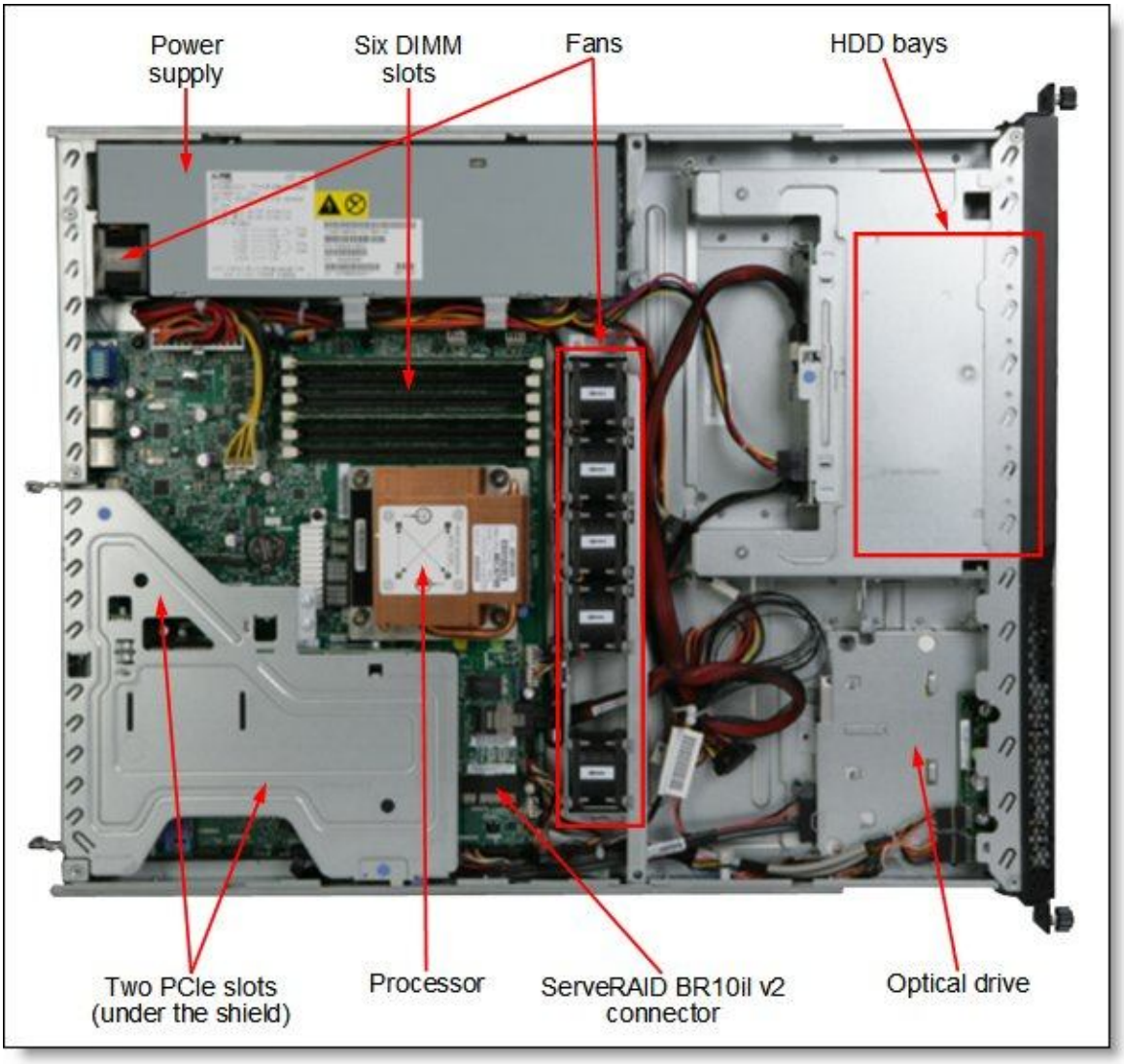

Figure 4. IBM System x3250 M3 rack server (inside view)

Standard specifications

The following table lists the standard specifications.

Table 1. Standard specifications (part 1)

Components	Specification
Form factor	1U Rack.
Processor	One quad-core Intel Xeon 3400 series processor (up to 3.06 GHz/8 MB) or one dual-core Intel Core i3 series processor (up to 3.2 GHz/4 MB) with up to 1333 MHz memory speed, or one dual-core Intel Pentium G6950 (2.8 GHz/3 MB) or Celeron G1101 (2.26 GHz/2 MB) with up to 1066 MHz memory speed. Supports specific quad-core and dual-core processors via Configure-To-Order (CTO).
Memory cache	Up to 8 MB L3 for Intel Xeon 3400 series processors. Up to 4 MB L3 for Intel Core i3 series processors.
Chipset	Intel 3420.
Memory DIMM slots	6 DIMM slots
Memory capacity	Up to 32 GB with 8 GB DDR3 RDIMMs and four populated DIMM slots, or up to 16 GB with 4 GB DDR3 UDIMMs and four populated DIMM slots. Dual-core processors only support UDIMMs.
Memory protection	ECC.
Disk drive bays	Up to two 3.5" simple-swap SATA HDDs, or up to two 3.5" hot-swap SAS/SATA HDDs, or up to four 2.5" hot-swap SAS/SATA HDDs or SATA SSDs (model dependent).
Maximum internal storage	Up to 2.4 TB with 600 GB SAS HDDs, or up to 4.0 TB with 2 TB SATA HDDs. Intermix of SAS/SATA is not supported.
RAID Support	No RAID support on integrated SATA controller (used on simple-swap standard models); RAID 0, 1, 1E with ServeRAID-BR10il v2 (used on hot-swap standard models). Optional RAID 5, 50 with ServeRAID M5014 or M5015. Optional upgrade to RAID 6, 60 is available for M5014 and M5015.
Optical drive bays	One, support for DVD-ROM or multiburner.
Tape drive bays	No internal tape drive support.
Network interfaces	Integrated 2 port Gigabit Ethernet/1 port is shared by IMM.
PCI Expansion slots	Standard models support two PCI Express 2.0 x8 slots. Both slots are implemented via one riser card installed into a single riser socket on the system planar. Slot details: ● Slot 1: PCIe 2.0 x8, low-profile half-length ● Slot 2: PCIe 2.0 x8, full-height, 3/4-length An alternative riser card with one PCE Express 2.0 x8 slot and one PCI-X 133 MHz 64-bit slot is also available, but only via CTO. Slot details: ● Slot 1: PCIe 2.0 x8, low-profile half-length ● Slot 2: PCI-X 133 MHz 64-bit, full-height, 3/4-length The server has an additional internal PCI Express socket dedicated to use of the ServeRAID BR10il v2 controller if installed.
External ports	Two USB 2.0 ports on front. Four USB 2.0, one DB-15 video, one DB-9 serial, two RJ-45 Gigabit Ethernet network ports (1 is dedicated, 1 is shared with IMM) on rear. One internal USB port for embedded hypervisor.
Cooling	IBM Calibrated Vectored Cooling™ with 5 fans and N+1 redundancy.

Table 1. Standard specifications (part 2)

Components	Specification
Power supply	One fixed 351 W AC power supply (standard models) or one fixed 351 W AC HE power supply (only available via CTO).
Hot-swap components	Hard drives.
Systems management	UEFI, IBM Integrated Management Module (IMM), Predictive Failure Analysis, Automatic Server Restart, IBM Systems Director* and IBM Systems Director Active Energy Manager, IBM ServerGuide. Optional Virtual Media Key for remote presence (graphics, keyboard and mouse, virtual media).
Security features	Power-on password, administrator's password, Trusted Platform Module (TPM).
Video	Matrox G200e integrated into IMM, maximum resolution is 1024x768 @ 75 Hz.
Operating systems supported	● Microsoft Windows Server 2003, 2003 R2, 2008, 2008 R2, 2012. ● Red Hat Enterprise Linux, SUSE Linux Enterprise Server. ● VMware ESX 4/4.1, VMware ESXi 4/4.1, VMware vSphere 5/5.1.
Limited warranty	1-year (4251) or 3-year (4252) customer replaceable unit and onsite limited warranty with 9x5/next business day (NBD) response time.
Service and Support	Optional service upgrades are available through IBM ServicePacs®: 24x7/NBD or 4 hours onsite repair, 1-year or 2-year warranty extension, remote technical support for IBM hardware and selected IBM and third-party (Microsoft, Linux, VMware) software.
Dimensions	Height: 43 mm (1.75 in), width: 440 mm (17.32 in), depth: 559 mm (22.00 in)
Weight	Minimum configuration: 11.0 kg (24.4 lb), maximum configuration: 12.7 kg (28 lb)

* Effective October 12, 2012, or until supply is depleted, IBM will discontinue the shipment of IBM Systems Director DVDs with IBM System x servers and IBM BladeCenter chassis. IBM Systems Director Express Edition and IBM Systems Director Standard Edition, which include software subscription and support, continue to be available for IBM System x servers and IBM Blade Centers.

The x3250 M3 servers are shipped with the following items:

- Statement of Limited Warranty
- Important Notices
- Rack Installation Instructions
- Documentation CD that contains the *Installation and User's Guide*
- Rack Kit
- One 2.8m C13 - C14 power cord

Standard models

The following table lists the standard models.

Table 2. Standard models

Model† 4251-/4252-	Intel Processor (one maximum)*	Memory	Disk adapter	HDD bays	Disks	GbE	DVD
42x	1x Xeon X3440 2.53GHz 4C 8MB 1333MHz	2x 1GB (R)	BR10ilv2	2x 3.5" HS	Open	2	Open
52x	1x Xeon X3450 2.67GHz 4C 8MB 1333MHz	2x 1GB (R)	BR10ilv2	2x 3.5" HS	Open	2	Open
62x	1x Xeon X3460 2.8GHz 4C 8MB 1333MHz	2x 1GB (R)	BR10ilv2	4x 2.5" HS	Open	2	Open
A2x	1x Pentium G6950 2.80GHz 2C 3MB 1333MHz	1x 1GB (U)	SATA‡	2x 3.5" SS	Open	2	Open
B2x	1x Core i3 540 3.06GHz 2C 4MB 1333MHz	1x 1GB (U)	SATA‡	2x 3.5" SS	Open	2	Open
C2x	1x Xeon X3430 2.4GHz 4C 8MB 1333MHz	2x 1GB (R)	SATA‡	2x 3.5" SS	Open	2	Open

† The x3520 M3 is available as machine type 4251 with a 1-year warranty, or as machine type 4252 with a 3-year warranty. This is the only difference between systems of the same model (for example, comparing 4251-22x and 4252-22x).
* Processor detail: Processor quantity, processor model, core speed, number of cores, L3 cache, front-side bus speed.
(U) The standard memory in this model is UDIMM memory.
(R) The standard memory in this model is RDIMM memory.
‡ These models use a SATA controller integrated on the system board.

Processor options

The server supports only one processor, which is already installed in a standard or configure-to-order (CTO) model. Standard models use processors as listed in the table. Where a model is not listed, that processor is only available via CTO or special bid.

Table 3. Processor options

Feature code	Description	Standard models where used
5848	Intel Xeon X3430 2.4GHz/1333MHz-8MB 4C	C2x
5846	Intel Xeon X3440 2.53GHz/1333MHz-8MB 4C	42x
5845	Intel Xeon X3450 2.67GHz/1333MHz-8MB 4C	52x
5843	Intel Xeon X3460 2.8GHz/1333MHz-8MB 4C	62x
6475	Intel Core i3-530 2.93 GHz 2C 4MB cache1333MHz 73W	
6476	Intel Pentium G6950 2.8GHz 2C 3MB cache 1333MHz 73W	A2x
6477	Intel Core-i3 540 3.06GHz 2C 4MB cache1333MHz 73W	B2x
A0QR	Intel Celeron G1101 2.26GHz 2C 2MB cache 1066 MHz 73W	

Memory options

IBM DDR3 memory is compatibility tested and tuned for optimal System x performance and throughput. IBM memory specifications are integrated into the light path diagnostics for immediate system performance feedback and optimum system uptime. From a service and support standpoint, IBM memory automatically assumes the IBM system warranty, and IBM provides service and support worldwide.

The x3250 M3 supports DDR3 ECC DIMMs. The server has six DIMM slots, however, the maximum amount of DIMMs that can be installed is limited by type and rank of DIMM used:

- RDIMMs
  - Up to six single-rank RDIMMs for a maximum of 6 GB (6x 1 GB)
  - Up to six dual-rank RDIMMs for a maximum of 24 GB (6x 4 GB)
  - Up to four quad-rank RDIMMs for a maximum of 32 GB (4x 8 GB)
- UDIMMs
  - Up to four single-rank UDIMMs for a maximum of 4 GB (4x 1 GB)
  - Up to four dual-rank UDIMMs for a maximum of 16 GB (4x 4 GB)

Mixing of UDIMMs and RDIMMs is not supported. RDIMMs are only supported with Intel Xeon 3400 series processors.

Memory speed is determined by type of processor used and the number and type of DIMMs installed:

- Intel Xeon 3400 series processors
  - 1333 MHz when one or two single-rank or dual-rank RDIMMs or UDIMMs per channel are installed
  - 1066 MHz when one quad-rank RDIMM per channel is installed
  - 800 MHz when three single-rank or dual-rank RDIMMs or two quad-rank RDIMMs per channel are installed
- Intel Celeron G, Pentium G, or Core i3
  - 1066 MHz when one or two single-rank or dual-rank UDIMMs per channel are installed

The following table lists the memory options supported by the server.

Table 4. Memory options

Part number	Feature code	Description	Maximum supported	Models where used
UDIMMs				
44T1568*	1915	1 GB (1x 1 GB, 1Rx8) PC3-10600 CL9 ECC 1333 LP UDIMM	4	22x, 32x, A2x, B2x
44T1569*	1914	2 GB (1x 2 GB, 2Rx8, 1.5 V) PC3-10600 ECC 1333 LP UDIMM	4	-
44T1570	1913	2 GB (1x 2 GB, 1Rx8, 1.5 V) PC3-10600 CL9 ECC 1333 LP UDIMM	4	-
44T1571	1912	4 GB (1x 4 GB, 2Rx8) PC3-10600 CL9 ECC 1333 LP UDIMM	4	-
RDIMMs				
44T1480*	3963	1 GB (1x 1 GB, 1Rx8) PC3-10600 CL9 ECC 1333 LP RDIMM	6	42x, 52x, 62x, C2x
44T1481*	3964	2 GB (1x 2 GB, 2Rx8) PC3-10600 CL9 ECC 1333 LP RDIMM	6	-
44T1592*	1712	2 GB (1x 2 GB, 1Rx8, 1.5V) PC3-10600 CL9 ECC 1333 LP RDIMM	6	-
44T1599*	1713	4 GB (1x 4 GB, 2Rx8) PC3-10600 CL9 ECC 1333 LP RDIMM	6	-
46C7448*	1701	4 GB (1x 4 GB, 4Rx8) PC3-8500 CL7 ECC 1066 LP RDIMM	4	-
46C7482*	1706	8 GB (1x 8 GB, 4Rx8) PC3-8500 CL7 ECC 1066 LP RDIMM	4	-

* Withdrawn from marketing

Internal disk storage options

The IBM System x3250 M3 supports the following internal disk storage configurations:

- Two 3.5" Simple-Swap SATA hard drive bays
- Two 3.5" hot-swap SAS/SATA hard drive bays
- Four 2.5" SFF hot-swap SAS hard drive bays

The following table lists the hard drive options available for internal disk storage in the x3250 M3 server. The intermixing of SAS and SATA drives is not supported.

For more information, see the list of IBM Redbooks Product Guides in the internal storage category
http://www.redbooks.ibm.com/Redbooks.nsf/portals/systemx?Open&page=pg&cat=internalstorage

For a comparison of drive technologies, see the IBM Redpaper, *IBM System x Server Disk Drive Interface Technology*
http://www.redbooks.ibm.com/abstracts/redp4791.html?Open

Table 5. Disk drive options (Part 1)

Part number	Feature code	Description	Maximum supported
3.5-inch NL SATA simple-swap			
81Y9778	A280	IBM 3TB 7.2K 6Gbps NL SATA 3.5" SS HDD	2
42D0787	5416	IBM 2TB 7200 NL SATA 3.5" SS HDD	2
3.5-inch SATA simple swap			
43W7622	5559	IBM 1TB 7.2K SATA 3.5" Simple-Swap HDD	2
43W7750	A0WU	IBM 250GB 7.2K SATA 3.5" Simple-Swap HDD	2
3.5-inch SAS hot-swap			
44W2234	5311	IBM 300GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	2
44W2239	5312	IBM 450GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	2
44W2244	5313	IBM 600GB 15K 6Gbps SAS 3.5" Hot-Swap HDD	2
3.5-inch NL SAS hot-swap			
81Y9758	A281	IBM 3TB 7.2K 6Gbps NL SAS 3.5" HS HDD	2
42D0767	5417	IBM 2TB 7.2K 6Gbps NL SAS 3.5" HS HDD	2
42D0777	5418	IBM 1TB 7.2K 6Gbps NL SAS 3.5" HS HDD	2
3.5-inch NL SATA hot-swap			
81Y9774	A27Z	IBM 3TB 7.2K 6Gbps NL SATA 3.5" HS HDD	2
42D0782	5415	IBM 2TB 7200 NL SATA 3.5" HS HDD	2
3.5-inch SATA hot-swap			
None*	5560	IBM 1TB 7200 SATA 3.5" HS HDD	2
2.5-inch SAS-SSD Hybrid Drive			
00AD102	A4G7	IBM 600GB 10K 6Gbps SAS 2.5" G2HS Hybrid	4

* This drive cannot be ordered separately. It is only available via special bid or the CTO process.

Table 5. Disk drive options (Part 2)

Part number	Feature code	Description	Maximum supported
2.5-inch 10K SAS hot-swap			
00AD075	A48S	IBM 1.2TB 10K 6Gbps SAS 2.5" G2HS HDD	4
81Y9650	A282	IBM 900GB 10K 6Gbps SAS 2.5" SFF HS HDD	4
49Y2003	5433	IBM 600GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	4
90Y8872	A2XD	IBM 600GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	4
42D0637	5599	IBM 300GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	4
90Y8877	A2XC	IBM 300GB 10K 6Gbps SAS 2.5" SFF G2HS HDD	4
2.5-inch 10K and 15K SAS hot-swap SED			
81Y9662	A3EG	IBM 900GB 10K 6Gbps SAS 2.5" SFF G2HS SED	4
90Y8908	A3EF	IBM 600GB 10K 6Gbps SAS 2.5" SFF G2HS SED	4
44W2264	5413	IBM 300GB 10K 6Gbps SAS 2.5" SFF Slim-HS SED	4
90Y8913	A2XF	IBM 300GB 10K 6Gbps SAS 2.5" SFF G2HS SED	4
44W2294	5412	IBM 146GB 15K 6Gbps SAS 2.5" SFF Slim-HS SED	4
90Y8944	A2ZK	IBM 146GB 15K 6Gbps SAS 2.5" SFF G2HS SED	4
2.5-inch 15K SAS hot-swap			
81Y9670	A283	IBM 300GB 15K 6Gbps SAS 2.5" SFF HS HDD	4
42D0677	5536	IBM 146GB 15K 6Gbps SAS 2.5" SFF Slim-HS HDD	4
90Y8926	A2XB	IBM 146GB 15K 6Gbps SAS 2.5" SFF G2HS HDD	4
2.5-inch NL SAS hot-swap			
81Y9690	A1P3	IBM 1TB 7.2K 6Gbps NL SAS 2.5" SFF HS HDD	4
42D0707	5409	IBM 500GB 7200 6Gbps NL SAS 2.5" SFF Slim-HS HDD	4
90Y8953	A2XE	IBM 500GB 7.2K 6Gbps NL SAS 2.5" SFF G2HS HDD	4
2.5-inch NL SATA hot-swap			
81Y9722	A1NX	IBM 250GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	4
81Y9726	A1NZ	IBM 500GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	4
81Y9730	A1AV	IBM 1TB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	4
2.5-inch SSD hot-swap			
43W7718	A2FN	IBM 200GB SATA 2.5" MLC HS SSD	4
49Y5844	A3AU	IBM 512GB SATA 2.5" MLC HS Enterprise Value SSD	4
49Y5839	A3AS	IBM 64GB SATA 2.5" MLC HS Enterprise Value SSD	4
90Y8643	A2U3	IBM 256GB SATA 2.5" MLC HS Enterprise Value SSD	4
90Y8648	A2U4	IBM 128GB SATA 2.5" MLC HS Enterprise Value SSD	4

The following table lists the RAID controllers and additional options used for internal disk storage of x3250 M3 server.

Table 6. RAID controllers for internal storage

Part number	Feature code	Description	Maximum supported	Models where used
49Y4731	9742	ServeRAID-BR10il SAS/SATA Controller v2	1	42x, 52x, 62x
81Y4492	A1XL	ServeRAID H1110 SAS/SATA Controller for IBM System x	1	-
46M0831	0095	ServeRAID M1015 SAS/SATA Controller	1	-
46M0832	9749	ServeRAID M1000 Series Advance Feature Key	1	-
46M0916	3877	ServeRAID M5014 SAS/SATA Controller	1	-
46M0829	0093	ServeRAID M5015 SAS/SATA Controller	1	-
46M0917	5744	ServeRAID M5000 Series Battery Kit	1	-
46M0930	5106	ServeRAID M5000 Series Advanced Feature Key*	1	-
81Y4426	A10C	ServeRAID M5000 Series Performance Accelerator Key*	1	-

* Note: The Advanced Feature Key and Performance Accelerator Key cannot be used at the same time. Only one key can be installed onto the RAID controller.

The ServeRAID BR10il v2 controller occupies the dedicated PCI-E slot in the x3250 M3 and does not consume either of the regular PCI expansion slots. However, the M1015, M5014, or 5015 RAID controllers do occupy one of the standard PCI-E x8 Gen 2 slots, therefore limiting the maximum number of additional I/O adapters to one. Only one RAID controller can be used in the server to support the internal HDDs.

The ServeRAID BR10il v2 SAS/SATA Controller has the following specifications:

- One Mini-SAS internal connector
- Supports RAID levels 0, 1, and 1E
- 3 Gbps throughput per port
- Based on the LSI 1064E controller
- PCI Express 2.0 x4 host interface
- Stripe size: 64 KB (fixed)

The ServeRAID M1015 SAS/SATA Controller has the following specifications:

- Two Mini-SAS internal connectors
- Supports RAID levels 0, 1, 10
- Supports RAID levels 5 and 50 with optional ServeRAID M1000 Series Advanced Feature Key
- 6 Gbps throughput per port
- Based on the LSI SAS2008 6 Gbps RAID on Chip (ROC) controller
- PCI Express 2.0 x8 host interface
- Configurable stripe size up to 64 KB

The ServeRAID M5014 SAS/SATA Controller has the following specifications:

- Two Mini-SAS internal connectors
- Supports RAID levels 0, 1, 5, 10, and 50
- Supports RAID 6 and 60 with the optional M5000 Advanced Feature Key
- Performance optimization for SSD drives with optional M5000 Series Performance Accelerator Key
- 6 Gbps throughput per port
- PCI Express 2.0 x8 host interface
- Based on the LSI SAS2108 6 Gbps RAID on Chip (ROC) controller
- 256 MB of onboard cache
- Optional Intelligent Li-Ion-based battery backup unit with the ServeRAID M5000 Series Battery Kit

The ServeRAID M5015 SAS/SATA Controller has the following specifications:

- Two Mini-SAS internal connectors
- Supports RAID levels 0, 1, 5, 10, and 50
- Supports RAID 6 and 60 with the optional M5000 Advanced Feature Key
- Performance optimization for SSD drives with optional M5000 Series Performance Accelerator Key
- 6 Gbps throughput per port
- PCI Express 2.0 x8 host interface
- Based on the LSI SAS2108 6 Gbps RAID on Chip (ROC) controller
- 512 MB of onboard cache
- Standard Intelligent Li-Ion-based battery backup unit with up to 48 hours of data retention

For more information, see the list of IBM Redbooks Product Guides in the RAID adapters category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=raid

Internal backup units

The server does not support internal tape drive options.

Optical drives

The server supports the optical drive options listed in the following table.

Table 7. Optical drives

Part number	Feature code	Description	Maximum supported	Models where used
46M0901	4161	IBM UltraSlim Enhanced SATA DVD-ROM	1	-
46M0902	4163	UltraSlim Enhanced SATA Multi-Burner	1	-
None*	4162	UltraSlim Enhanced SATA CD-RW / DVD-ROM Combo	1	-

* This optical drive is for CTO orders only.

IBM UltraSlim Enhanced SATA DVD-ROM (part number 46M0901) supports the following media and speeds for reading:

- CD-ROM 24X
- CD-DA (DAE) 20X
- CD-R 24X
- CD-RW 24X
- DVD-ROM (single layer) 8X
- DVD-ROM (dual layer) 8X
- DVD-R (4.7 GB) 6X
- DVD-R DL 4X
- DVD+R 6X
- DVD+R DL 4X
- DVD-RW (4.7 GB) 4X
- DVD+RW 4X
- DVD-RAM (4.7/9.4 GB) 4X

IBM UltraSlim Enhanced SATA Multi-Burner (part number 46M0902) supports the same media and speeds for reading as DVD-ROM (46M0901). In addition, this drive supports the following media and speeds for writing:

- CD-R 24X
- CD-RW 4X
- High Speed CD-RW 10X
- Ultra Speed CD-RW 16X
- Ultra Speed Plus CD-RW 16X
- DVD-R 8X
- DVD-R DL 6X
- DVD+R 8X
- DVD+R DL 6X
- DVD-RW 6X
- DVD+RW 8X
- DVD-RAM 5X

I/O expansion options

Standard models support two PCI Express 2.0 x8 slots. Both slots are implemented via one riser card installed into a single riser socket on the system planar. An alternative riser card with one PCE Express 2.0 x8 slot and one PCI-X 133 MHz 64-bit slot is also available, but only via CTO. The slot form-factors are as follows:

- Slot 1: Low-profile half-length
- Slot 2: Full-height, 3/4-length

The server has an additional PCI Express socket dedicated to use of the ServeRAID BR10il v2 controller if installed.

Network adapters

x3250 M3 supports two integrated Gigabit Ethernet ports. One port is shared with IMM.

Integrated NICs have the following features:

- Intel 82574L chip
- TCP/UDP, IPv4, and IPv6 checksum offloads
- TCP Segmentation/Transmit Segmentation Offloading (TSO)
- Wake on LAN support
- 802.1Q VLAN tagging support
- Support for jumbo frames up to 9 KBytes
- NIC Teaming (Load Balancing and Failover) with Intel PROSet software

The following table lists additional supported network adapters.

Table 8. Network adapters

Part number	Feature code	Description	Maximum supported
10Gb Ethernet			
49Y7910	A18Y	Broadcom NetXtreme II Dual Port 10GBaseT Adapter for IBM System x	2
42C1820	1637	Brocade 10Gb CNA for IBM System x	2
49Y7950	A18Z	Emulex 10GbE Virtual Fabric Adapter II for IBM System x	2
49Y7960	A2EC	Intel X520 Dual Port 10GbE SFP+ Adapter for IBM System x	2
49Y7970	A2ED	Intel X540-T2 Dual Port 10GBase-T Adapter for IBM System x	2
81Y9990	A1M4	Mellanox ConnectX-2 Dual Port 10GbE Adapter for IBM System x	2
42C1800	5751	QLogic 10 Gb Dual Port CNA for IBM System x	2
Gigabit Ethernet			
90Y9352	A2V3	Broadcom NetXtreme I Quad Port GbE Adapter for IBM System x	2
90Y9370	A2V4	Broadcom NetXtreme I Dual Port GbE Adapter for IBM System x	2
49Y4230	5767	Intel Ethernet Dual Port Server Adapter I340-T2 for IBM System x	2
49Y4240	5768	Intel Ethernet Quad Port Server Adapter I340-T4 for IBM System x	2
39Y6066	1485	NetXtreme II 1000 Express Ethernet Adapter	2
42C1780	2995	NetXtreme II 1000 Express Dual Port Ethernet Adapter	2
42C1750	2975	PRO/1000 PF Server Adapter by Intel	2

For more information, see the list of IBM Redbooks Product Guides in the Networking adapters category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=networkadapters

Storage host bus adapters

The following table lists the storage host bus adapters (HBAs) supported by x3250 M3 server.

Table 9. Storage adapters

Part number	Feature code	Description	Maximum supported
Fibre Channel			
81Y1668	A2XU	Brocade 16Gb FC Single-port HBA for IBM System x	2
81Y1675	A2XV	Brocade 16Gb FC Dual-port HBA for IBM System x	2
81Y1655	A2W5	Emulex 16Gb FC Single-port HBA for IBM System x	2
81Y1662	A2W6	Emulex 16Gb FC Dual-port HBA for IBM System x	2
00Y3337	A3KW	QLogic 16Gb FC Single-port HBA for IBM System x	2
00Y3341	A3KX	QLogic 16Gb FC Dual-port HBA for IBM System x	2
46M6049	3589	Brocade 8 Gb FC Single-port HBA for IBM System x	2
46M6050	3591	Brocade 8 Gb FC Dual-port HBA for IBM System x	2
42D0485	3580	Emulex 8 Gb FC Single-port HBA for IBM System x	2
42D0494	3581	Emulex 8 Gb FC Dual-port HBA for IBM System x	2
42D0501	3578	QLogic 8 Gb FC Single-port HBA for IBM System x	2
42D0510	3579	QLogic 8 Gb FC Dual-port HBA for IBM System x	2
59Y1987	3885	Brocade 4 Gb FC Single-port HBA for IBM System x	2
59Y1993	3886	Brocade 4 Gb FC Dual-port HBA for IBM System x	2
iSCSI			
39Y6146	2976	QLogic iSCSI Single-Port PCIe HBA for IBM System x	2
42C1770	2977	QLogic iSCSI Dual-Port PCIe HBA for IBM System x	2
SAS			
46M0907	5982	IBM 6 Gb SAS HBA Controller	2
46M0912	3876	IBM 6Gb Performance Optimized HBA	1

For more information, see the list of IBM Redbooks Product Guides in the Host bus adapters category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=hba

PCIe SSD I/O adapters

The server does not support the High IOPS SSD adapters.

Power supplies

The server supports one fixed 351 W AC power supply (standard models) or one fixed 351 W High Efficient AC power supply supported by IBM Systems Director Active Energy Manager (via CTO).

Standard models ship with one 2.8 m C13 - C14 power cord.

Integrated virtualization

The server supports VMware ESXi installed on a USB memory key. The key is installed in a USB socket inside the server. The following table lists the virtualization option.

Table 10. Virtualization option

Part number	Feature code	Description	Maximum supported
41Y8298	A2G0	IBM Blank USB Memory Key for VMWare ESXi Downloads	1
41Y8278	1776	IBM USB Memory Key for VMware ESXi 4	1
41Y8287	3033	IBM USB Memory Key for VMware ESXi 4.1	1
41Y8300	A2VC	IBM USB Memory Key for VMWare ESXi 5.0	1
41Y8307	A383	IBM USB Memory Key for VMWare ESXi 5.0 Update 1	1
41Y8311	A2R3	IBM USB Memory Key for VMWare ESXi 5.1	1

Remote management

The server contains IBM Integrated Management Module (IMM), which provides advanced service-processor control, monitoring, and alerting functions. If an environmental condition exceeds a threshold or if a system component fails, the IMM lights LEDs to help you diagnose the problem, records the error in the event log, and alerts you to the problem. Optionally, the IMM also provides a virtual presence capability for remote server management capabilities.

The IMM provides remote server management through industry-standard interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3
- Common Information Model (CIM)
- Web browser

The optional virtual media key is required to enable the remote presence and blue-screen capture features. The remote presence feature provides the following functions:

- Remotely viewing video with graphics resolutions up to 1600x1200 at 75 Hz, regardless of the system state
- Remotely accessing the server, using the keyboard and mouse from a remote client
- Mapping the CD or DVD drive, diskette drive, and USB flash drive on a remote client, and mapping ISO and diskette image files as virtual drives that are available for use by the server
- Uploading a diskette image to the IMM memory and mapping it to the server as a virtual drive

The blue-screen capture feature captures the video display contents before the IMM restarts the server when the IMM detects an operating-system hang condition. A system administrator can use the blue-screen capture to assist in determining the cause of the hang condition. The following table lists the remote management option.

Table 11. Remote management option

Part number	Feature code	Description	Maximum supported
46C7527	5891	IBM Virtual Media Key For Entry Systems	1

Supported operating systems

Operating systems supported by the product are:

- IBM 4690 Operating System V6
- Microsoft Windows Server 2003, Web Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise x64 Edition
- Microsoft Windows Server 2003/2003 R2, Standard Edition
- Microsoft Windows Server 2003/2003 R2, Standard x64 Edition
- Microsoft Windows Server 2008 Foundation
- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Server 2012
- Microsoft Windows Small Business Server 2008 Premium Edition
- Microsoft Windows Small Business Server 2008 Standard Edition
- Red Hat Enterprise Linux 4 AS for AMD64/EM64T
- Red Hat Enterprise Linux 4 AS for x86
- Red Hat Enterprise Linux 4 ES for AMD64/EM64T
- Red Hat Enterprise Linux 4 ES for x86
- Red Hat Enterprise Linux 4 WS/HPC for AMD64/EM64T
- Red Hat Enterprise Linux 4 WS/HPC for x86
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server Edition with Xen
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 6 Server Edition

- Red Hat Enterprise Linux 6 Server x64 Edition
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 10 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- VMware ESX 4.0
- VMware ESX 4.1
- VMware ESXi 4.0
- VMware ESXi 4.1
- VMware vSphere 5.0 (ESXi)
- VMware vSphere 5.1 (ESXi)

Physical and electrical specifications

Dimensions:

- Height: 43 mm (1.75 in)
- Width: 440 mm (17.32 in)
- Depth: 559 mm (22.00 in)
- Weight:
  - Minimum configuration: 11.0 kg (24.4 lb)
  - Maximum configuration: 12.7 kg (28 lb)

Supported environment:

- Air temperature:
  - Server powered on
    - 10.0 to 35.0 degrees C (50 to 95 degrees F); altitude: 0 to 914.4 m (3,000 ft)
    - 10.0 to 32.0 degrees C (50 to 89.6 degrees F); altitude: 914.4 m (3,000 ft) to
    - 2,133.6 m (7,000 ft)
  - Server powered off
    - 10.0 to 43.0 degrees C (50 to 109.4 degrees F); maximum altitude: 2,133.6 m (7,000 ft)
  - Shipping
    - -40 to 60 degrees C (-40 to 140 degrees F)
    - Relative humidity: 8 to 80%
- Electrical:
  - 100 - 127 (nominal) V ac; 50 - 60 Hz; 6.0 A
  - 200 - 240 (nominal) V ac; 50 - 60 Hz; 3.0 A
  - Input kilovolt-amperes (kVA) (approximately):
    - Minimum configuration: 0.050 kVA
    - Maximum configuration: 0.550 kVA
  - Btu output:
    - Ship configuration: 171 Btu/hr (50 watts)
    - Full configuration: 1024 Btu/hr (300 watts)

Warranty options

The IBM System x3250 M3 has a 1-year (4251) or 3-year (4252) onsite warranty with 9x5/next business day terms. IBM offers warranty service upgrades through IBM ServicePacs. The IBM ServicePac is a series of prepackaged warranty maintenance upgrades and post-warranty maintenance agreements with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

IBM ServicePac offerings are country-specific. That is, each country might have its own service types, service levels, response times, and terms and conditions. Not all covered types of ServicePacs might be available in a particular country. For more information about IBM ServicePac offerings available in your country, see the IBM ServicePac Product Selector at https://www-304.ibm.com/sales/gss/download/spst/servicepac.

Warranty service definitions are explained in more detail in the following table.

Table 12. Warranty service definitions

Term	Description
IBM onsite repair (IOR)	A service technician will come to the server's location for equipment repair.
24x7x2 hour	A service technician is scheduled to arrive at your customer's location within two hours after remote problem determination is completed. We provide service 24 hours per day, every day, including IBM holidays.
24x7x4 hour	A service technician is scheduled to arrive at your customer's location within four hours after remote problem determination is completed. We provide service around the clock, every day, including IBM holidays.
9x5x4 hour	A service technician is scheduled to arrive at your customer's location within four business hours after remote problem determination is completed. We provide service from 8:00 a.m. to 5:00 p.m. in the customer's local time zone, Monday through Friday, excluding IBM holidays. If after 1:00 p.m. it is determined that onsite service is required, the customer can expect the service technician to arrive the morning of the following business day. For noncritical service requests, a service technician will arrive by the end of the following business day.
9x5 next business day	A service technician is scheduled to arrive at your customer's location on the business day after we receive your call, following remote problem determination. We provide service from 8:00 a.m. to 5:00 p.m. in the customer's local time zone, Monday through Friday, excluding IBM holidays.

In general, the types of IBM ServicePacs are as follows:

- Warranty and maintenance service upgrades
  - One, 2, 3, 4, or 5 years of 9x5 or 24x7 service coverage
  - Onsite repair from next business day to 4 or 2 hours (selected areas)
  - One or 2 years of warranty extension
- Remote technical support services
  - One or 3 years with 24x7 coverage (severity 1) or 9x5/next business day for all severities
  - Installation and startup support for System x servers
  - Remote technical support for System x servers
  - Software support - Support Line
    - Microsoft or Linux software
    - VMware
    - IBM Systems Director

Regulatory compliance

The server conforms to the following international standards:

- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-2006, GOST R 51317.3.3-99
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000)

External disk storage expansion

The external disk storage expansion enclosures listed in the following table are supported with x3250 M3 server.

Table 13. External storage expansion enclosure

Part number	Description	Maximum supported per one M5025
174712X	IBM System Storage EXP2512 Express Storage Enclosure	18 (9 per port)
174724X	IBM System Storage EXP2524 Express Storage Enclosure	9 (9 per port)

The hard disk drives listed in the following table are supported with external expansion enclosures.

Table 14. Hard drive options for external expansion enclosures

Part number	Description	Maximum supported per one enclosure
EXP3000 Hot-Swap SATA 3.5" Hard Drives		
43W7630	1000 GB Dual Port Hot Swap SATA	12
49Y1940	IBM 2 TB 7200 Dual Port SATA 3.5" HS HDD	12
EXP3000 Hot-Swap SAS 3.5" Hard Drives		
44W2234	IBM 300 GB 15K 6 Gbps SAS 3.5" Hot-Swap HDD	12
44W2239	IBM 450 GB 15K 6 Gbps SAS 3.5" Hot-Swap HDD	12
44W2244	IBM 600 GB 15K 6 Gbps SAS 3.5" Hot-Swap HDD	12

The RAID controllers listed in the following table are supported with external expansion enclosures.

Table 15. RAID controllers for external storage expansion enclosures

Part number	Feature code	Description	Maximum supported
46M0830	0094	ServeRAID M5025 SAS/SATA Controller	1
46M0930	5106	ServeRAID M5000 Series Advance Feature Key*	1 per one M5025
81Y4426	A10C	ServeRAID M5000 Series Performance Accelerator Key*	1 per one M5025

* Note: The Advanced Feature Key and Performance Accelerator Key cannot be used at the same time. Only one key can be installed onto the RAID controller.

The ServeRAID M5025 SAS/SATA Controller has the following specifications:

- Two Mini-SAS external connectors
- Supports RAID levels 0, 1, 5, 10, and 50
- Supports RAID 6 and 60 with the optional M5000 Advanced Feature Key
- Performance optimization for SSD drives with optional M5000 Series Performance Accelerator Key
- 6 Gbps throughput per port
- PCI Express 2.0 x8 host interface
- Based on the LSI SAS2108 6 Gbps RAID on Chip (ROC) controller
- 512 MB of onboard cache
- Intelligent Li-Ion-based battery backup unit with up to 48 hours of data retention
- Supports connectivity to the EXP3000 storage expansion enclosures

For more information, see the *ServeRAID M5025 SAS/SATA Controller for IBM System x* at-a-glance guide: http://www.redbooks.ibm.com/abstracts/tips0739.html?Open

The external SAS cables listed in the following table are supported with external expansion enclosures and M5025 RAID controllers.

Table 16. External SAS cables for external storage expansion enclosures

Part number	Description	Maximum supported per enclosure*
39R6531	IBM 3 m SAS Cable	1
39R6529	IBM 1 m SAS Cable	1

* Note: Multiple EXP3000 enclosures can be daisy-chained together, all connected to the one RAID controller. Each enclosure requires a cable.

External disk storage systems

The following table lists the external storage systems that are supported by the server and can be ordered through System x sales channel. The server may support other IBM disk systems that are not listed in this table. Refer to IBM System Storage Interoperability Center for further information, http://www.ibm.com/systems/support/storage/ssic.

Table 17. External disk storage systems

Part number	Description
1746A2D	IBM System Storage DS3512 Express Dual Controller Storage System
1746A2S	IBM System Storage DS3512 Express Single Controller Storage System
1746A4D	IBM System Storage DS3524 Express Dual Controller Storage System
1746A4S	IBM System Storage DS3524 Express Single Controller Storage System
181494H	IBM System Storage DS3950 Model 94
181498H	IBM System Storage DS3950 Model 98
181492H	IBM System Storage EXP395 Expansion Unit
1746A2E	IBM System Storage EXP3512 Express Storage™ Expansion Unit
1746A4E	IBM System Storage EXP3524 Express Storage Expansion Unit

For more information, see the list of IBM Redbooks Product Guides in the Storage Systems category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=externalstorage

External backup units

The server supports the external backup attachment options listed in the following table.

Table 18. External backup options (Part 1)

Part number	Description
External tape expansion enclosures for internal tape drives	
87651UX	1U Tape Drive Enclosure
8767HHX	Half High Tape Drive Enclosure
87651NX	1U Tape Drive Enclosure (with Nema 5-15P LineCord)
8767HNX	Half High Tape Drive Enclosure (with Nema 5-15P LineCord)
Tape enclosure adapters (with cables)	
44E8869	USB Enclosure Adapter Kit
40K2599	SAS Enclosure Adapter Kit
Internal backup drives supported by external tape enclosures	
46C5364	IBM RDX Removable Hard Disk Storage System - Internal USB 160 GB Bundle
46C5387	IBM RDX Removable Hard Disk Storage System - Internal USB 320 GB Bundle
46C5388	IBM RDX Removable Hard Disk Storage System - Internal USB 500 GB Bundle
46C5399	IBM DDS Generation 5 USB Tape Drive
39M5636	IBM DDS Generation 6 USB Tape Drive
43W8478	IBM Half High LTO Gen 3 SAS Tape Drive
44E8895	IBM Half High LTO Gen 4 SAS Tape Drive
49Y9898	IBM Half High LTO Gen 5 Internal SAS Tape Drive

Table 18. External backup options (Part 2)

Part number	Description
External backup units*	
362516X	IBM RDX Removable Hard Disk Storage System - External USB 160 GB Bundle
362532X	IBM RDX Removable Hard Disk Storage System - External USB 320 GB Bundle
362550X	IBM RDX Removable Hard Disk Storage System - External USB 500 GB Bundle
3628L3X	IBM Half High LTO Gen 3 External SAS Tape Drive (with US line cord)
3628L4X	IBM Half High LTO Gen 4 External SAS Tape Drive (with US line cord)
3628L5X	IBM Half High LTO Gen 5 External SAS Tape Drive (with US line cord)
3628N3X	IBM Half High LTO Gen 3 External SAS Tape Drive (without line cord)
3628N4X	IBM Half High LTO Gen 4 External SAS Tape Drive (without line cord)
3628N5X	IBM Half High LTO Gen 5 External SAS Tape Drive (without line cord)
3580S3V	System Storage TS2230 Tape Drive Express Model H3V
3580S4V	System Storage TS2240 Tape Drive Express Model H4V
3580S5E	System Storage TS2250 Tape Drive Express Model H5S
3580S5X	System Storage TS2350 Tape Drive Express Model S53
3572S4R	TS2900 Tape Library with LTO4 HH SAS drive & rack mount kit
3572S5R	TS2900 Tape Library with LTO5 HH SAS drive & rack mount kit
35732UL	TS3100 Tape Library Model L2U Driveless
35734UL	TS3200 Tape Library Model L4U Driveless
46X2682†	LTO Ultrium 5 Fibre Channel Drive
46X2683†	LTO Ultrium 5 SAS Drive Sled
46X2684†	LTO Ultrium 5 Half High Fibre Drive Sled
46X2685†	LTO Ultrium 5 Half High SAS Drive Sled
46X6912†	LTO Ultrium 4 Half High Fibre Channel Drive Sled
46X7117†	LTO Ultrium 4 Half High SAS DriveV2 Sled
46X7122†	LTO Ultrium 3 Half High SAS DriveV2 Sled

* Note: The external tape drives listed can be ordered through System x sales channel. Server may support other IBM tape drives that are not listed in this table. Refer to IBM System Storage Interoperability Center for further information.
† Note: These part numbers are the tape drives options for 35732UL and 35734UL.

For more information, see the list of IBM Redbooks Product Guides in the Backup units category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=tape

Top-of-rack Ethernet switches

The server supports the top-of-rack Ethernet switches from IBM System Networking listed in the following table.

Table 19. IBM System Networking - Top-of-rack switches

Part number	Description
IBM System Networking - 1 Gb top-of-rack switches	
0446013	IBM System Networking RackSwitch G8000R
7309CFC	IBM System Networking RackSwitch G8000F
7309CD8	IBM System Networking RackSwitch G8000DC
7309G52	IBM System Networking RackSwitch G8052R
730952F	IBM System Networking RackSwitch G8052F
427348E	IBM Ethernet Switch J48E
6630010	Juniper Networks EX2200 24 Port
6630011	Juniper Networks EX2200 24 Port with PoE
6630012	Juniper Networks EX2200 48 Port
6630013	Juniper Networks EX2200 48 Port with PoE
IBM System Networking - 10 Gb top-of-rack switches	
7309DRX	IBM System Networking RackSwitch G8264CS (Rear to Front)
7309DFX	IBM System Networking RackSwitch G8264CS (Front to Rear)
7309BD5	IBM System Networking RackSwitch G8124DC
7309BR6	IBM System Networking RackSwitch G8124ER
7309BF7	IBM System Networking RackSwitch G8124EF
7309G64	IBM System Networking RackSwitch G8264R
730964F	IBM System Networking RackSwitch G8264F
7309CR9	IBM System Networking RackSwitch G8264TR
7309CF9	IBM System Networking RackSwitch G8264TF
0719410	Juniper Networks EX4500 - Front to Back Airflow
0719420	Juniper Networks EX4500 - Back to Front Airflow
IBM System Networking - 40 Gb top-of-rack switches	
8036ARX	IBM System Networking RackSwitch G8316R
8036AFX	IBM System Networking RackSwitch G8316F

For more information, see the list of IBM Redbooks Product Guides in the Top-of-rack switches category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=tor

Uninterruptible power supply units

The server supports attachments to the uninterruptible power supply (UPS) units listed in the following table.

Table 20. Uninterruptible power supply units

Part number	Description
Rack-mounted UPS	
53951AX	IBM 1500VA LCD 2U Rack UPS (100 V/120 V)
53951KX	IBM 1500VA LCD 2U Rack UPS (230 V)
53952AX	IBM 2200VA LCD 2U Rack UPS (100 V/120 V)
53952KX	IBM 2200VA LCD 2U Rack UPS (230 V)
53953AX	IBM 3000VA LCD 3U Rack UPS (100 V/120 V)
53953JX	IBM 3000VA LCD 3U Rack UPS (200 V/208 V)
53953KX	IBM 3000VA LCD 3U Rack UPS (230 V)
53956AX	IBM 6000VA LCD 4U Rack UPS (200 V/208 V)
53956KX	IBM 6000VA LCD 4U Rack UPS (230 V)
53959KX	IBM 11000VA LCD 5U Rack UPS (200 V/208 V/230 V)
Tower UPS	
53961AX	IBM 1000VA LCD Tower UPS (120 V)
53961JX	IBM 1000VA LCD Tower UPS (100 V)
53961KX	IBM 1000VA LCD Tower UPS (230 V)
53962AX	IBM 1500VA LCD Tower UPS (120 V)
53962JX	IBM 1500VA LCD Tower UPS (100 V)
53962KX	IBM 1500VA LCD Tower UPS (230 V)

For more information, see the list of IBM Redbooks Product Guides in the Power infrastructure category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=power

Power distribution units

The server supports attachments to the power distribution units (PDUs) when installed in rack.

Table 21. Power distribution units (part 1)

Part number	Description
Switched and Monitored PDUs	
46M4002	IBM 1U 9 C19/3 C13 Active Energy Manager DPI® PDU
46M4003	IBM 1U 9 C19/3 C13 Active Energy Manager 60A 3 Phase PDU
46M4004	IBM 1U 12 C13 Active Energy Manager DPI PDU
46M4005	IBM 1U 12 C13 Active Energy Manager 60A 3 Phase PDU
46M4167	IBM 1U 9 C19/3 C13 Switched and Monitored 30A 3 Phase PDU
46M4116	IBM 0U 24 C13 Switched and Monitored 30A PD
46M4119	IBM 0U 24 C13 Switched and Monitored 32A PDU
46M4134	IBM 0U 12 C19/12 C13 Switched and Monitored 50A 3 Phase PDU
46M4137	IBM 0U 12 C19/12 C13 Switched and Monitored 32A 3 Phase PDU
Enterprise PDUs	
71762MX	IBM Ultra Density Enterprise PDU C19 PDU+ (WW)
71762NX	IBM Ultra Density Enterprise PDU C19 PDU (WW)
71763MU	IBM Ultra Density Enterprise PDU C19 3 phase 60A PDU+ (NA)
71763NU	IBM Ultra Density Enterprise PDU C19 3 phase 60A PDU (NA)
39M2816	IBM DPI C13 Enterprise PDU without linecord
39Y8923	DPI 60A Three Phase C19 Enterprise PDU with IEC309 3P+G (208 V) fixed line cord
39Y8941	DPI Single Phase C13 Enterprise PDU without line cord
39Y8948	DPI Single Phase C19 Enterprise PDU without line cord
Front-End PDUs	
39Y8934	DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd connector
39Y8935	DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd connector
39Y8938	30amp/125V Front-end PDU with NEMA L5-30P connector
39Y8939	30amp/250V Front-end PDU with NEMA L6-30P connector
39Y8940	60amp/250V Front-end PDU with IEC 309 60A 2P+N+Gnd connector
Universal PDUs	
39Y8951	DPI Universal Rack PDU with US LV and HV line cords
39Y8952	DPI Universal Rack PDU with CEE7-VII Europe LC
39Y8953	DPI Universal Rack PDU with Denmark LC
39Y8954	DPI Universal Rack PDU with Israel LC

Table 21. Power distribution units (part 2)

Part number	Description
39Y8955	DPI Universal Rack PDU with Italy LC
39Y8956	DPI Universal Rack PDU with South Africa LC
39Y8957	DPI Universal Rack PDU with UK LC
39Y8958	DPI Universal Rack PDU with AS/NZ LC
39Y8959	DPI Universal Rack PDU with China LC
39Y8962	DPI Universal Rack PDU (Argentina)
39Y8960	DPI Universal Rack PDU (Brazil)
39Y8961	DPI Universal Rack PDU (India)
0U Basic PDUs	
46M4122	IBM 0U 24 C13 16A 3 Phase PDU
46M4125	IBM 0U 24 C13 30A 3 Phase PDU
46M4128	IBM 0U 24 C13 30A PDU
46M4131	IBM 0U 24 C13 32A PDU
46M4140	IBM 0U 12 C19/12 C13 60A 3 Phase PDU
46M4143	IBM 0U 12 C19/12 C13 32A 3 Phase PDU

For more information, see the list of IBM Redbooks Product Guides in the Power infrastructure category: http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=power

Racks cabinets

The server supports the rack cabinets listed in the following table.

Table 22. Rack cabinets

Part number	Description
93072PX	IBM 25U Static S2 Standard Rack
93072RX	IBM 25U Standard Rack
93074RX	IBM 42U Standard Rack
93074XX	IBM 42U Standard Rack Extension
93084EX	IBM 42U Enterprise Expansion Rack
93084PX	IBM 42U Enterprise Rack
93604EX	IBM 42U 1200mm Deep Dynamic Expansion Rack
93604PX	IBM 42U 1200mm Deep Dynamic Rack
93614EX	IBM 42U 1200mm Deep Static Expansion Rack
93614PX	IBM 42U 1200mm Deep Static Rack
93624EX	IBM 47U 1200mm Deep Static Expansion Rack
93624PX	IBM 47U 1200mm Deep Static Rack
99564RX	IBM S2 42U Dynamic Standard Rack
99564XX	IBM S2 42U Dynamic Standard Expansion Rack

For more information, see the list of IBM Redbooks Product Guides in the Rack cabinets and options category:
http://www.redbooks.ibm.com/portals/systemx?Open&page=pg&cat=rack

Rack options

The server supports the rack console switches and monitor kits listed in the following table.

Table 23. Rack options

Part number	Feature code	Description
Monitor kits and keyboard trays		
172317X	1723HC1 fc 0051	1U 17in Flat Panel Console Kit
172319X	1723HC1 fc 0052	1U 19in Flat Panel Console Kit
Console switches		
1754D2X	1754HC2 fc 6695	IBM Global 4x2x32 Console Manager (GCM32)
1754D1X	1754HC1 fc 6694	IBM Global 2x2x16 Console Manager (GCM16)
1754A2X	1754HC4 fc 0726	IBM Local 2x16 Console Manager (LCM16)
1754A1X	1754HC3 fc 0725	IBM Local 1x8 Console Manager (LCM8)
Console cables		
43V6147	3757	IBM Single Cable USB Conversion Option (UCO)
39M2895	3756	IBM USB Conversion Option (4 Pack UCO)
39M2897	3754	IBM Long KVM Conversion Option (4 Pack Long KCO)
46M5383	5341	IBM Virtual Media Conversion Option Gen2 (VCO2)
46M5382	5340	IBM Serial Conversion Option (SCO)

For more information, see the list of IBM Redbooks Product Guides in the Rack cabinets and options category:
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Related publications

For more information refer to these documents:

- IBM System x3250 M3 product page
  http://www.ibm.com/systems/x/hardware/rack/x3250m3/index.html
- *Installation and User's Guide - IBM System x3250 M3*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5082564
- *Problem Determination and Service Guide - IBM System x3250 M3 (4251, 4252, 4261)*
  http://ibm.com/support/entry/portal/docdisplay?lndocid=MIGR-5082563
- ServerProven® hardware compatibility page for the x3250 M3
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